# Physical and chemical characteristics of depigmented oven dried dehulled millet flours

## ABSTRACT

The physical and chemical characteristics oven dried millet flour from dehulled millet soaked in different media was studied. Depigmented oven dried dehulled millet flour was produced by soaking dehulled millet in different solutions; water, 1% NaCl, 1% Na2CO3, and 1% citric acid. All samples were soaked in their respective solution for 12h, dried in the oven at 60oC for 6h then milled into flour and sieved through 710µm mesh size. The physical properties of oven dried dehulled millet; colour had L* (whiteness value), a* (redness values), and b* (yellowness values) that differed significantly ranging from 66.74 to 84.21, 0.85 to 1.43, and 6.89 to 12.69 respectively. The minimum, mean and maximum particle size distributions of samples ranged from 9.53 to 23.41µm, 29.09 to 50.15µm and 59.46 to 176.01 µm respectively. Starch granules in micrographs of oven dried depigmented millet flours were irregular, compact and polygonally shaped. Gelatinization properties of oven dried millet flour; the onset temperature (To), peak temperature (Tp), end set temperature (Te) and enthalpy varied significantly ranging from 70.15 to 97.65 o C, 79.48 to 102.31 o C, 83.30 to 104.96 o C, and 6.70 to 28.41 (J/g) respectively. Chemical properties comprising of moisture, fats, ash, protein, crude fiber, pH, total titratable acidity, pH of soak solution, phytates and tannins varied significantly ranging from 10.19 to 10.88%, 4.27 to 4.61%, 0.71 to 1.19%, 7.25 to 8.67%, 1.00 to 1.08%, 4.35 to 8.45, 0.001 to 0.084%, 3.32 to 9.93, 0.60 to 0.62, 1.84 to 6.45mg/g and 3.06 to 6.68 mg/g respectively. Depigmenting dehulled millet by soaking in 1% Na2CO3 impaired the colour of sample ODMF2 while depigmenting dehulled millet grains by soaking in 1% citric acid solution for 12 h improved colour of sample ODMF1.

**Keyword:** Depigmentation; Soaking; Oven dried millet flour